

John F. Schneider

Chemical Analysis & Research Group
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Experience

Argonne National Laboratory

Lemont, IL

GROUP LEADER; Chemical Analysis and Research Group, Argonne National Laboratory, 1990 to present. Principal Job functions; Manage Chemical Analysis and Research Group. Write research proposals and attract funding. Interact with sponsors including the Office of Naval Research, Department of Homeland Security, Defense Threat Reduction Agency, and others. The Group is involved in chemical detection, analytical chemistry method development, instrumental analysis, method validation, and basic chemical research. Technical specialties; Electronic nose development (chemical sensor array), chemical warfare agent analysis, explosives analysis, environmental sampling and analysis, field analytical chemistry, gas chromatography (GC), GC/IR, GC/MS, and X-ray Fluorescence analysis for metals in the field. I hold a "Q" clearance.

I am currently working on the detection and degradation of Toxic Inhalation Hazards (TIHs) for the US Department of Transportation. We are performing experiments in our labs to better understand the mechanisms. We have also established a lab facility for the evaluation and development of chemical sensor systems for the US Department of Homeland Security.

ORGANIC ANALYTICAL CHEMIST; Argonne National Laboratory, 1980 to 1990, Analytical Chemistry Laboratory - Hired in October 1980 as Scientific Assistant. 1984 promoted to Scientific Associate. 1987 promoted to Scientist. 1988 served as Associate Group Leader. I was part of a team that developed the gas chromatography/matrix isolation-fourier transform infrared spectrometer (GC/MI-FTIR) analytical instrument. Technical specialties; GC, GC/IR, GC/MSD, Matrix Isolation FTIR, Priority pollutant determination by EPA CLP methods, organic analysis, environmental chemistry.

Illinois Institute of Technology

Chicago, IL

RESEARCH ASSISTANT PROFESSOR; Illinois Institute of Technology, Chicago IL, Fall 2006 to present. Collaborating with Dr. Joe Stetter on the development and application of chemical sensors. Teaching Chem 506 Sampling & Sample Preparation.

Diamond Shamrock Chemical Company

Franklin Park, IL

DEVELOPMENT CHEMIST; Diamond Shamrock Chemical Company, 1978. Left in 1980 to take position at ANL. Principal Job functions; Develop analyses as required to support production of nutrition and health products. Supervise and train technicians performing QC analyses. Maintain QC program for all analyses. Develop organic synthetic and purification processes as required. Technical specialties; Vitamin analysis, GC, HPLC, NMR, UV-visible spectroscopy, and wet analysis, Process development.

Education

Masters of Science, Analytical Chemistry **Northern Illinois University** Dekalb, IL

- Thesis title, "NMR and Fluorescence Studies of Protein-Metal -Chelate Interactions".
- Research project included extensive use and operation of a Jelco FT-NMR.
- Advisor - Dr. J. Pesek

Bachelor of Science, Chemistry **Elmhurst College** Elmhurst, IL

- Senior research project title, "Synthesis of Amino Acid-trien Cobalt Complexes".
- Course work included 52 semester hours in chemistry.

Awards

2014 - Argonne National Laboratory Pacesetter Award for efforts on the Threat Detection & Analysis Groups Projects.

Projects

2016 - Evaluation of Chemical Detectors for The DHS

We evaluate selected chemical detection systems for their ability to detect toxic gases at the concentration levels of concern. We established a lab facility using permeation tubes to generate the selected chemicals in air at selected concentrations.

2014 – 2016 Jack Rabbit II

Department of Homeland Security project to release large volumes of Chlorine gas at Dugway Proving Ground (DPG) in Utah, in order to study the environmental fate and deposition upon soil, plants, and materials. Travelled to DPG for XRF fieldwork in summer 2015 and 2016. I am also part of the Chlorine Reactivity/Deposition Working Group.

2013 – 2016 Experimental Studies for Assessing the Mitigation of TIH Chemicals

The Department of Transportation (DOT) and the Department of Homeland Security (DHS) are very concerned about the potential risk associated with the transport of toxic inhalation hazards (TIH), especially Chlorine. We are performing experiments in our labs to better understand the mechanisms.

2014 – 2015 Lantheus Project

Developed an analytical method for the analysis of radioactive Xenon gas in Carbon dioxide. Lantheus is a company that produces gases for radioactive imaging of lungs. We are developing a method to determine the concentration of desired gases and potential contaminants

2011 – 2016 Medical Isotope Production – Molybdenum-99

I am assisting a team developing a new method to synthesize medical isotopes in an accelerator instead of a nuclear reactor. This DOE funded project will fill a critical need for the US to be independent of foreign supplies of medical isotopes. I am involved with the process analytical to monitor the gases produced in the process, especially hydrogen.

2012 – 2013 National Security Initiative – Chemical & Explosive Threats Team

I was the Team Leader for Argonne National Laboratories National Security Initiative Chemical & Explosive Threat Team. We developed strategies to enable Argonne to make developing technologies more available to the National Security community.

2005 – 2015 NAUTICAS Project

I was part of a team developing neutron activation analysis for the interrogation of containers for explosives, nuclear materials, and contraband of concern to maritime security. Project called NAUTICAS (Naval Underwater Threat Interrogation and Covert Assessment System) is funded by the Office of Naval Research. I am also the Facility Manager and custodian for all rad material.

2006 – 2008 Linac Coherent Light Source

I was involved with the Linac Coherent Light Source (LCLS) project as the QA/QC coordinator. Argonne National Laboratory designed and built the LCLS FEL for SLAC (Stanford Linear Accelerator). This project was a major success as the LCLS functioned to specifications at first light.

2003 – 2010 THz Source for Stand Off Detection

I was part of a team developing a Free Electron Laser (FEL) high power source for THz radiation for stand off detection. A 1-kilowatt source has been developed. We are collaborating with the Indian Head Naval Research Laboratory on application of THz to the detection of explosives.

2002 – 2005 Chemical Agent Container Characterization

I was the Principal Investigator for a project funded by the US Army to develop methods to characterize the contents of chemical agent containers for the presence of mercury and other metals. We developed a method for the digestion of VX using microwave digestion and ICP/MS analysis. We also explored the use of X-ray fluorescence as a tool to characterize the contents of chemical agent containers in a nonintrusive manner. We also explored neutron activation analysis as a possible method.

2000 – 2004 Electronic Nose for the USDA

I was the Principal Investigator developing Chemical sensor array systems (electronic nose) for the USDA Animal and Plant Health Inspection Service (APHIS) to detect incoming contraband at portals of entry into the USA. The purpose was to protect US agriculture. We collaborated with a group at the Illinois Institute of Technology (IIT). This work has resulted in several publications.

1998 – 2004 Chemical Warfare Agent Demilitarization

I was the Principal Investigator for developing GC/MS analytical methods for the analysis of chemical warfare agents in decontamination processes and waste. This work was performed for the US Army Chem Demil program at Dugway Proving Ground in Utah, The Deseret Chemical Depot in Utah, and Aberdeen Proving Ground in Maryland. We developed and validated several methods.

1996 – 2004 Chemical Warfare Agent Analytical Method Development

I was the PI for the Development of analytical methods for the analysis of Chemical Warfare Agents. Established and ran a US Army Certified Dilute Chemical Agent Facility in Building 200 at Argonne, which was ISO certified. Performed several projects for the US Army Chemical Agent Standard Reference Material (CASARM) group developing analytical methods for chemical agents.

1996 – 2002 Emergency Response Lab for US EPA First Responders

Developed analytical methods for chemical agents and other toxic compounds and served as emergency response lab for the US EPAs Region 5 Emergency Response Group in case of terrorist attack. This work resulted in several publications.

1994 – 1998 Pilot Plant Characterization

I was part of a team funded by the US Army to develop methods and characterize the chemical hazards associated with the demolition of the “Pilot Plant” at the Edgewood Arsenal in Maryland. This facility had been heavily utilized in the production and research of chemical warfare agents. Our efforts identified some hazards not previously known, most notably the contamination of one room with significant quantities of BZ (a hallucinogenic chemical agent)

1993 – 1994 Demonstration and Evaluation of the Pulsed Ultraviolet-Irradiation Gas-Treatment System, Savannah River Site

I lead a team in the demonstration and evaluation of a pulsed ultraviolet-irradiation gas treatment system developed by Purus, Inc. The system was designed to reduce both TCE and PCE contamination by photo-oxidation.

1992 – 1999 Portable XRF Site Characterization

I developed portable X-ray fluorescence as a tool for on site analysis of metals. I was the Principal Investigator of a team performing site characterizations at the Rocky Mountain Arsenal for Lead and Arsenic, Grafenwhor Military Facility in Germany for Lead, Hohenfels Military Facility in Germany for Lead and Arsenic, Locknitz Military Facility in Germany for Arsenic and Arsenicals, and Argonne’s waste area for heavy metals. Wrote several publications, including a protocol for doing this kind of characterization.

1990 – 1994 Joliet Army Ammunition Plant/Fate of Explosives

I was working as the Manager of the Joliet Army Ammunition Plant (JAAP) Superfund site. I organized Superfund meetings at the site and served as a liaison between the US Army, the US EPA, and the Illinois EPA. I also was the Principal Investigator for an Army funded project to characterize contaminated areas at JAAP for explosives using on site methods. We also studied uptake of explosives into plant material and determined fate of explosive compounds.

1988 – 1998 On Site Environmental Site Characterization

I was the Principal Investigator for developing a mobile laboratory for on site environmental characterization. We converted a Wells Cargo trailer into a mobile Laboratory that was used at sites (Aberdeen Proving Ground, Rocky Mountain Arsenal, Joliet Army Ammunition Plant, Iowa Army Ammunition Plant, and private facilities. I developed analytical methods and generated data for several studies.

1984 – 1989 GC/Matrix Isolation-FTIR

I was part of a team at Argonne National Laboratory that invented GC/matrix isolation-FTIR, which won an R & D 100 award. This technique allows the analytes separated by capillary gas chromatography to be trapped in an inert matrix of argon or nitrogen and analyzed by Fourier Transform Infrared Spectroscopy. This technique produces high quality spectra of matrix-isolated compounds that allows the identification of specific isomers that cannot easily be done by GC/MS. The sensitivity is superior to other GC/IR methods.

1982 – 1986 PCB Analysis/DOE Site Survey

I was the principal analysts for the analysis of Polychlorinated Biphenyls (PCBs) for the US EPA Region 5 and the DOE Site Survey Program. We used EPA methods from SW-846 and ran thousands of samples over this period.

1981 – 1984 PCB Analytical Method Development

I developed a parallel capillary column method for the gas chromatographic analysis of samples for polychlorinated biphenyls (PCBs). This was an improvement over then existing methods for PCBs. We used this method to analyze samples for the US EPA.

1980 – 1984 Coal Analysis

I was involved in the characterization of coal and coal products as part of the DOE Coal Toxicology Program. We were trying to find potential health problems with the conversion of coal to liquid and gaseous fuels.

1978 – 1980 Diamond Shamrock Corp.

Worked as a Process Chemist in a chemical production plant for Diamond Shamrock's Animal Nutrition Division. We produced vitamins and other supplements for animal feed. I was supervising the analytical laboratory which involved supporting production, QA/QC, maintaining production documentation for the FDA.

PUBLICATIONS

Journal Articles and Technical Reports

1. Compendium of Phase-1 Mini-SHINE Experiments, Amanda J. Youker, Michael Kalensky, Sergey Chemerisov, John F. Schneider, James Byrnes, Peter Tkac, John Krebs, Brad Micklich, and George F. Vandergrift, *Argonne National Laboratory Report*, No. ANL/NE-16/39 October 2016
2. Micro-SHINE Uranyl Sulfate Irradiations at the Linac, Amanda J. Youker, Michael Kalensky, Sergey Chemerisov, John F. Schneider, James Byrnes, and George F. Vandergrift, *Argonne National Laboratory Report*, No. ANL/NE-16/20 August 2016
3. Accelerator-Pathway for ^{99}Mo production without Highly Enriched Uranium, S.D. Chernerisov, P. Tkac, A.J. Youker, J.F. Krebs, D.A. Rotsch, M. Kalensky, T.A. Helternes, G.F. Vandegrift, K. Alford, J.P. Byrnes, R. Gromov, M. Virgo, L. Ilafenrichter, A.S. Hebden, T.L. Jerden, C.D. .Jonah, V. Makarashvili, K. J. Quigley, J.F. Schneider, D.C. Stepinski, and K.A.Wesolowski, **Proceedings of Mo-99 2016 Topical Meeting on Molybdenum-99 Technology Development**, St. Louis, Mo September 2016
4. Evaluation of Portable X-Ray Fluorescence for the Determination of Chlorine in the Environment After Chlorine Releases at Jack Rabbit II, CSAC 16-004, Mark T. Whitmire and John F. Schneider, Report to Shannon B. Fox, U.S. Department of Homeland Security, Chemical Security Analysis Center, Aberdeen Proving ground, MD 21010, February 10, 2016
5. Phase 1 Uranium Sulfate Irradiations – Analysis of Radiological Gases, M. Kalensky, T. Heltemes, J. Jerden, J. Schneider, G. Vandegrift, and S. Chemerisov, Report to U.S. department of Energy, January, 2016
6. Measuring Radiolytic- and Fission-Gas Generation in an Aqueous Uranium-Sulfate Target Solution in Accelerator-Based Mo-99 Production, M. Kalensky, T. A. Heltemes, J. F. Schneider, D. F. Bowers, S. D. Chemerisov, A.J. Youker, P. Tkac, K.J. Quigley, J. F. Krebs, D. Rotsch, and G. F. Vandegrift III, **Proceedings of Mo-99 2014 Topical Meeting on Molybdenum-99 Technology Development**, Washington D.C., June 2014
7. Chemical Processing of mini-SHINE Target Solutions for Recovery and Purification of Mo-99, D.A. Rotsch, A.J. Youker, P. Tkac, D.C. Stepinski, J.F. Krebs, V. Makarashvili, M. Kalensky, Z. Sun, T.A. Helmetes, J.F. Schneider, A.S. Hebden, J.P. Byrnes, L. Hafenrichter, K.A. Wesolowski, S.D. Chemerisov, and G.F. Vandergrift, **Proceedings of Mo-99 2014 Topical Meeting on Molybdenum-99 Technology Development**, Washington D.C., June 2014
8. Naval Underwater Threat Interrogation and Covert Assessment System (NAUTICAS0, **Final report to the Office of Naval Research**, September 30, 2012

9. Compact High Power Electron Beam Based Terahertz Sources, Biedron, S.G., J. W. Lewellen, S. V. Milton, N. S. Gopalsami, J.F. Schneider, L.R. Skubal, Y. Li, M. Virgo, G.P. Gallerano, A. Doria, E. Giovenale, G. Messina, I.P. Spassovsky, **Proceedings of IEEE**, 95(8), 1666-1678, 2007.
10. Evaluation of an Electronic Nose With Sample Preconcentration for the Detection of Toxic Industrial Chemicals, John F. Schneider, Carrie M. Thomas, and Steven Sunshine, **The Journal of Process Analytical Chemistry**, 10, (1), August 2007
11. Mercury Transformations in Chemical Agent Simulant as Characterized by X-ray Absorption Fine Spectroscopy, Laura R. Skubal, Sandra G. Biedron, Matthew Newville, John F. Schneider, Stephen V. Milton, Piero Pianetta, H. Jack O'Neill, **Talanta**, 67, 730-735, 2005
12. Detection of Fruit Odors Using an Electronic Nose, John Schneider, **SPIENewsroom**, December 2005
13. Data Analysis for a Hybrid Sensor Array, M. Pardo, L. G. Kwong, G. Sberveglieri, K. Brubaker, J. F. Schneider, W. R. Penrose and J. R. Stetter, **Sensors and Actuators B**, 106, 136-143, 2005
14. Odor Concentration to Enhance Electronic Nose Performance, Carrie M. Thomas and John F. Schneider, **The Journal of Process Analytical Chemistry**, 9, (2), 43-54, 2005
15. Evaluation of Electronic Nose Technology for USDA Applications in Detecting Contraband Meat Products and Vegetation, John F. Schneider, et. al., **Sponsor Report-Argonne National Laboratory** August 2004
16. The Examination of Mercury Interactions with Iron in the Presence of Chemical Agent Simulant Using EXAFS and XANES, L.R. Skubal, S.G. Biedron, M. Newville, J.F. Schneider, S. Milton, P. Pianetta, H.J. O'Neill, **Argonne National Laboratory Report**, No. ANL-03/21 ANL0321 December 2003
17. Detection of contraband food products with a hybrid chemical sensor system, M. Pardo, L.G. Kwong, G. Sberveglieri, J.F. Schneider, W.R. Penrose, J.R. Stetter, **Sensors**, 2003. Proceedings of IEEE , Volume: 2 , 22-24, 1073-1076 October 2003
18. Portable X-Ray Fluorescence Analysis of a CW Facility Site for Arsenic Containing Warfare Agents, John F. Schneider, D. Johnson, K. Thurow, N. Stoll, and K. Thurow, in **NATO Science Series, 1: Disarmament Technologies 2002, Environmental Aspects of Converting CW Facilities to Peaceful Purposes**, (edited by R..R. McGuire and J.C. Compton) NATO Science Series, Kluwer Acad. Pub., Dordrecht, The Netherlands, pp 139 - 148, 2002
19. Development of an Analytical Methodology for Sarin (GB) and Soman (GD) in Various Military-Related Wastes, Hugh J. O'Neill, Kenneth L Brubaker, John F. Schneider, Louis F. Sytsma, and Todd A. Kimmell, **The Journal of Chromatography A**, 962, 183-195, 2002
20. Screening for Sarin in Air and Water by Solid-Phase Microextraction-Gas Chromatography/Mass Spectrometry, John F. Schneider, Amrit S. Boparai, and Larry L. Reed, **The Journal of Chromatographic Science**, 39 (10) 420-424, 2001
21. Analysis for Chemical Agents to Support the U.S. EPA's Region 5 Emergency Response Branch, Amrit S. Boparai, John F. Schneider, and Larry L. Reed, **The Journal of Process Analytical Chemistry**, 6, (4), 154, 2001
22. A Coulometric Iodimetric Procedure for Measuring the Purity of Lewisite, Giselle Sandí, Kenneth L. Brubaker, John F. Schneider, Hugh J. O'Neill and Paul L. Cannon, **TALANTA**, 54(5) 913-925, 2001

23. A Coulometric Iodimetric Procedure for Measuring the Purity of Lewisite (CASARM), K.L. Brubaker, J.F. Schneider and H.J. O'Neill, Final Report to U.S. Army Edgewood Chemical, Biological Center, June 2000
24. Portable X-Ray Fluorescence Spectrometry Characterization of Arsenic Contamination in Soil at a German Military Site, John F. Schneider, D. Johnson, N. Stoll, K. Thurow, and K. Thurow, *AT-PROCESS - The Journal of Field Analytical Chemistry*, 4, (1,2) 12-17, 1999
25. Chemical Analyses for GB (Sarin) in Media Generated by Munitions Disposal, K.L. Brubaker, J.F. Schneider, H.J. O'Neill, L.L. Reed, A.S. Boparai, C.T. Snyder, N.A. Tomczyk, and L.L. Jensen, *Argonne National Laboratory Report*, No. ANL/ACL-99/1 November 1999
26. Protocol for Using Portable X-Ray Fluorescence Spectroscopy to Detect Metals in Soil, John F. Schneider, *American Environmental Laboratory*, 10, 20 - 22, April 1998
27. Toxics Testing Performance Evaluation for GB and GD, H.J. O'Neill, J.F. Schneider, K.L. Brubaker, T.A. Kimmell, and A.W. Anderson, Final Report to US Army Test and Evaluation Command (TECOM), February 1998
28. Toxics Testing Performance Evaluation for HD (Mustard), H.J. O'Neill, J.F. Schneider, K.L. Brubaker, T.A. Kimmell, and A.W. Anderson, *Argonne National Laboratory Report*, No. ANL/EAD/TM-76 December 1997
29. Gas Chromatography/Sulfur Chemiluminescence Detection for the Analysis of Bis (2-Chloroethyl) Sulfide, John F. Schneider, H. J. O'Neill, Todd A. Kimmell, Carol Nudell, and N. Kosco, *Book of Abstracts, 213th ACS National Meeting*, San Francisco April 1997
30. A Review of the Traceability of Results Generated by the Analytical Methods Currently Used for CASARM Certification, K.L. Brubaker, J.H. Aldstadt, R.E. botto, H.J. O'Neill, and J.F. Schneider, Final Report to the US Army Chemical Agent Standard Analytical Reference Material (CASARM) Quality Assurance Team, December 1997
31. Portable X-Ray Fluorescence for the Determination of Heavy Metal Contamination in Soil on Firing Ranges, John F. Schneider, Jae Lee, and Albert Bohm, *American Environmental Laboratory*, 8, 21 - 22, December 1996
32. Rapid Extraction and Gas Chromatographic Analysis of Soil for Chlorinated Pesticides, J. F. Schneider, N. A. Tomczyk, M. J. Gowdy, and M.G. Besmer, *American Environmental Laboratory*, 7, 22, October 1995
33. Survey for Glycolates and Lewisite Degradation Products in Building E5626, Aberdeen Proving Ground, Maryland, N.A. Tomczyk, K.L. Brubaker, H.J. O'Neill, L.F. Sytsma, W.D. Treibold, J.F. Schneider, S.W. Ballou, M. Booher, C. Tome, V.J. Cohut, and R.E. Zimmerman, *Argonne National Laboratory Report*, No. ANL/ESD/TM-91 September 1995
34. X-Ray Fluorescence Investigation of Surface Lead in the Pilot Plant Complex, Aberdeen Proving Ground, Maryland, K.L. Brubaker, H.J. O'Neill, J.E. Parks, J. Rueda, J.F. Schneider, and R.E. Zimmerman, *Argonne National Laboratory Report*, No. ANL/ESD/TM-113 September 1995
35. X-Ray Fluorescence Investigation of Heavy-Metal Contamination on Metal Surfaces in the Pilot Plant Complex, Aberdeen Proving Ground, Maryland, K.L. Brubaker, A.K. Draugelis, J.F. Schneider, K.A. Billmark, and R.E. Zimmerman, *Argonne National Laboratory Report*, No. ANL/ESD/TM-118 July 1995
36. Monitoring for PCBs at the Pilot Plant Complex, Aberdeen Proving Ground, Maryland, J.F. Schneider, H.J. O'Neill, V.J. Cohut, D.C. Hayes, D.P. O'Reilly, and R.E. Zimmerman, *Argonne National Laboratory Report*, No. ANL/ESD/TM-116 July 1995

37. Air Monitoring for Volatile Organic Compounds at the Pilot Plant Complex, Aberdeen Proving Ground, Maryland, J.F. Schneider, H.J. O'Neill, L.A. Raphaelian, N.A. Tomczyk, L.F. Sytsma, V.J. Cohut, H.A. Cobo, D.P. O'Reilly, and R.E. Zimmerman, *Argonne National Laboratory Report*, No. ANL/ESD/TM-94 March 1995
38. Plant Uptake of Explosives from Contaminated Soil at the Joliet Army Ammunition Plant, S.D. Zellmer, J.F. Schneider, N.A. Tomczyk, W.L. Banwart, and D. Chen, *U.S. Army Environmental Center Report*, No. SFIM-AEC-ET-CR-95014 April 1995
39. Uptake of Explosives from Contaminated Soil by Existing Vegetation at the Iowa Army Ammunition Plant, J.F. Schneider, S.D. Zellmer, N.A. Tomczyk, J.R. Rastorfer, D. Chen, and W.L. Banwart, *U.S. Army Environmental Center Report*, No. SFIM-AEC-ET-CR-95013 February 1995
40. Evaluation of a Field-Portable X-Ray Fluorescence Spectrometer for the Determination of Lead Contamination in Soil, J.F. Schneider, J.D. Taylor, D.A. Bass, S.D. Zellmer, and M. Rieck, *American Environmental Laboratory*, 6, 35-36, December 1994
41. Demonstration and Evaluation of the Pulsed Ultraviolet-Irradiation Gas-Treatment System, Savannah River Site, J. Schneider, M. Wilkey, R. Peters, N. Tomczyk, P. Farber, J. Friedlund, B. Mass, and W. Haag, *Argonne National Laboratory Report*, No. ANL/ESD/TM-73 October 1994
42. Uptake of Explosives from Contaminated Soil by Existing Vegetation at the Joliet Army Ammunition Plant, J.F. Schneider, N.A. Tomczyk, S.D. Zellmer, and W.L. Banwart, *Argonne National Laboratory Report*, No. ANL/ESD/TM-65 January 1994
43. Heavy Metal Contamination on Training Ranges at the Grafenwöhr Training Area, Germany, S.D. Zellmer and J.F. Schneider, *Argonne National Laboratory Report*, No. ANL/ESD/TM-59 May 1993
44. Evaluation of Gas Chromatography/Matrix Isolation-Infrared Spectroscopy for the Quantitative Analysis of Environmental Samples, John F. Schneider, Ken R. Schneider, Stephanie E. Spiro, Douglas R. Bierma, and Louis F. Sytsma, *Applied Spectroscopy*, 45, 566-571, May 1991
45. Gas Chromatography/Matrix Isolation-Infrared Spectrometry Applications: The Identification of C2 Naphthalene Isomers in Complex Fossil Fuel Mixtures, John F. Schneider, Leo A. Raphaelian, Amrit S. Boparai, Mary C. Hansen, and Mitchell D. Erickson, *Journal of Chromatographic Science*, 27:592-595, October 1989
46. A Comparison of PCB/Pesticide Quantitation Using Packed Vs. Megabore Columns, Mary C. Hansen, John F. Schneider, and Mitchell D. Erickson, *Argonne National Laboratory Report*, No. ANL/ACL-89-1 December 1989
47. Evaluation of A Commercial Gas Chromatograph/Matrix Isolation-Infrared Spectrometer For Quantitative Analysis of Priority Pollutants, John F. Schneider, Ken R. Schneider, and Stephanie E. Spiro, *Argonne National Laboratory Report*, No. ANL/ACL-89-2 October 1989
48. Chemistry of Bottom Sediments From The North Branch Of The Chicago River And North Branch Canal, W. Harrison, P.M. Aznavoorian, D. Kullen, M.D. Erickson, J.F. Schneider, and C. Tome, *Argonne National Laboratory Report*, No. ANL/EES-TM-372, April 1989
49. The Detection of Mercury, Lead, and Methylmercury Binding Sites on Lysozyme by Carbon-13 NMR Chemical Shifts of the Carboxylate Groups, Joseph J. Pesek and John F. Schneider, *Journal of Inorganic Biochemistry*, 32, 233-238, 1988
50. A Study of the Permeability of Polyethylene Pipe by Organic Compounds, John F. Schneider and Lora Harty, *Argonne National Laboratory Report*, No. ANL/ACL-87-1, December 1987

51. Detection of Mercury Coordination Numbers Greater Than 2 for Organomercurials Using Chlorine-35 Magnetic Resonance, Joseph J. Pesek and John F. Schneider, *Inorganic Chemistry*, 26: 3064-3065, September 1987
52. Fluorescence Studies of the Kinetics of Binding and Removal of Metal Ions in Proteins, Joseph J. Pesek, Gwen L. Rosser, Robert J. Dowe, and John F. Schneider, *Analytica Chimica Acta*, 188: 101-109, October 1986
53. A Comparison of GC/IR Interfaces: The Light Pipe Vs. Matrix Isolation, John F. Schneider, Jack C. Demirgian, and Joseph C. Stickler, *Journal of Chromatographic Science*, 24: 330-335, August 1986
54. Matrix Isolation versus the Light Pipe as an Interface for GC/FTIR, John F. Schneider, Jack C. Demirgian, and Joseph C. Stickler, in *Analytical Chemistry Instrumentation*; Proceedings of the 28th Conference on Analytical Chemistry in Energy Technology, (W.R. Laing ed.) Lewis Publishers, Chelsea, MI, pp 159 - 164, 1985
55. High Resolution Gas Chromatography/Matrix Isolation Infrared Spectrometry, Gerald T. Reedy, Deon G. Ettinger, John F. Schneider, and Sid Bourne, *Analytical Chemistry*, 57: 1602-1609, July 1985
56. Fluorescence Quenching and Halide-Ion Nuclear Magnetic Resonance Spectroscopy as Probes for Metal Binding to Proteins, Joseph J. Pesek, Robert J. Dowe, and John F. Schneider, *Analytica Chimica Acta*, 170: 187-198, April 1985
57. GC/Matrix Isolation/FTIR Applications: Analysis of PCBs, John F. Schneider, Gerald T. Reedy, and Deon G. Ettinger, *Journal of Chromatographic Science*, 23: 49-53, Feb 1985
58. Parallel Capillary Column Gas Chromatography in the Determination of Chlorinated Pesticides and PCBs, John F. Schneider, Sid Bourne, and Amrit S. Boparai, *Journal of Chromatographic Science*, 22: 203-206, May 1984
59. An Improved Procedure for Extraction of Aromatic Bases from Synfuel Materials, A.S. Boparai, D.A. Haugen, K.M. Suhrbier, and J.F. Schneider, *Advanced Techniques in Synthetic Fuels Analysis*, (C.W. Wright et al. eds.), Technical Information Center, U.S. Department of Energy, Springfield, VA, Chapt. 1, pp. 3-11 1983

John F. Schneider

Selected Conference Presentations/Courses Taught

1. Introduction to Gas Chromatography/Infrared Spectrometry, ½ day course taught by John F. Schneider at the 2017 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, March 2017
2. Production of Medical Isotopes with Electron Linacs, D.A. Rotsch, K. Alford, T. Brossard, S.D. Chmerisov, T.A. Helmetes, M. Kalensky, B. Micklich, John F. Schneider, 2016 North American Particle Accelerator Conference, Chicago, IL Oct 2016
3. Introduction to Gas Chromatography/Infrared Spectrometry, ½ day course taught by John F. Schneider at the 2016 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA, March 2016
4. Measuring Radiolytic- and Fission-Gas Generation in an Aqueous Uranium-Sulfate Target Solution in Accelerator-Based Mo-99 Production, M. Kalensky, T. A. Helmetes, J. F. Schneider, D. F. Bowers, S. D. Chmerisov, A. J. Youker, P. Tkac, K. J. Quigley, J. F. Krebs, D. Rotsch, and G. F. Vandegrift III, Mo-99 2014 Topical Meeting on Molybdenum-99 Technology Development, Washington D.C., June 2014
5. Evaluation of an Electronic Nose With Sample Preconcentration for the Detection of Toxic Industrial Chemicals, John F. Schneider, C. Thomas, S. Sunshine, International On-Site Analysis Conference, Arlington, VA, 2006
6. Solid Phase Microextraction (SPME) with GC/MS and GC/matrix isolation-IR Analysis in the Identification of Volatile Organic Compounds in Food Products, John F. Schneider, 227th American Chemical Society National Meeting, Anaheim, CA, 2004
7. The Evolution of On-Site Analysis Over the Last 20 Years, John F. Schneider, International On-Site Analysis Conference, San Diego, CA, 2002
8. Using Solid Phase Microextraction (SPME) to Monitor Phytoremediation of VOCs, John F. Schneider, L. Sytsma, N. Bosch, L. Martino, J. Wrobel, International On-Site Analysis Conference, San Diego, CA, 2002
9. Evaluation of Electronic Nose Technology in Detecting Contraband Meat Products, John F. Schneider, L. Sytsma, K. Brubaker, J. Stetter, W. Penrose, and L. Wong, International Symposium on Olfaction and Electronic Nose (ISOEN 02), Rome, Italy, 2002
10. Lewisite Purity Determination by Coulometric Titration, John F. Schneider, G. Sandi, H. O'Neill, L. Schiff, E. Vickers, and H. Elbaum, Pittsburgh Conference, New Orleans, LA, 2000
11. Solid Phase Microextraction (SPME) screening for Chemical Warfare Agents, John F. Schneider, Pacifichem 2000, Honolulu, HI, 2000
12. Portable X-Ray Fluorescence Analysis of a CW Facility Site for Arsenic Containing Warfare Agents, John F. Schneider, D. Johnson, N. Stoll, K. Thurow, A. Koch, and K. Thurow, NATO Advanced Research Workshop, 139 -147, Spiez, Switzerland, 1999
13. Uptake of Explosives by Vegetation From Contaminated Soil, John F. Schneider, S. Zellmer, and N. Tomczyk, International Chemical Congress of Pacific Basin Societies, Honolulu, HI, 1995
14. The Determination of TNT and TNT Degradation Products in Soil by HPLC and Other Analytical Methods., Nancy A. Tomczyk and John F. Schneider, 34th ORNL - DOE Conference on Analytical Chemistry in Energy Technology; Gatlinburg, TN 1993